

APPARATUS AND METHOD OF CIRCULAR GROUP-WISE PARALLEL  
INTERFERENCE CANCELLATION FOR MULTI-RATE DS-CDMA SYSTEMS

ABSTRACT OF THE DISCLOSURE

An apparatus and method for performing circular group-wise parallel interference cancellation in a multi-rate DS-CDMA system that reduce the multiple access interference in a CDMA system are disclosed. The invention provide a method of grouping received signals, which improves the interference cancellation efficiency of the signal receiver. The method of the invention groups a plurality of signals according to the magnitude of signals, and sequentially performs interference cancellation with respect to the groups in order of the signal magnitude. The apparatus and method determine the signal rank by using both the power estimation value of the received signal of each finger and the soft bit decision value being the output value of the maximal ratio combiner, perform grouping of the fingers selected by a finger selector, and finally perform interference cancellation. The soft bit decision value is independent of channel, and has the bit information at the time of signal transmission. Accordingly, this soft bit decision value is employed along with the power estimation value of the received signal, to allow more accurate grouping of signals.